

REMARKS

Introduction

Status of claims

Claims 1 to 10 have been examined on the merits.

Claims 1, 4 and 5 have been currently amended.

Support for these amendments can be found in the specification as follows:

in claim 1, " wherein the said carbonyl groups are bound to the polymer chain in the said polyurethane by means of a divalent group _X- wherein -X- is selected from the group consisting of linear, branched, and cyclic alkylene and aralkylene groups having at least three carbon atoms, wherein the two binding sites in _X- are not at the same carbon atom"

is taken from page 2, lines 18 to 25, of the specification;

the definitions of the carbonyl group as being "aldehyde-like" or "ketone-like" have been replaced by a better translation "aldehyde type" and "ketone type" of the original wording of "aldehyd-artig" and "keton-artig" of the German language original;

in claim 4, "from three to twenty carbon atoms" is taken from from page 2, line 21, of the specification, and those limitations that have been incorporated into claim 1 have been deleted; and

in claim 5, "2-acetyl-1-ethanol" has been deleted.

No new matter has been introduced, and entry of the amended claims is respectfully requested.

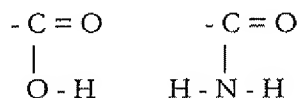
The Office Action

Rejection under 35 U. S. C. 112, second paragraph

A ketone has a carbonyl group wherein the carbon atom of the carbonyl group is covalently bound to two further carbon atoms.

An aldehyde has a carbonyl group wherein the carbon atom of the carbonyl group is covalently bound to one further carbon atom, and to one hydrogen atom.

A copy of the relevant pages of "Grant & Hackh's Chemical Dictionary" is attached which confirms this generally accepted usage. It is therefore deemed that the terms "ketone-like carbonyl group" and "aldehyde-like carbonyl group" are sufficiently well defined, and particularly, differentiated from other possibilities, such as a $>\text{C}=\text{O}$ group in a carboxylic acid, or in an acid amide:

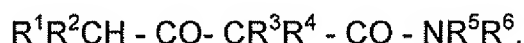


In order to be fully responsive to the Official Action, the terms "aldehyde-like" and "ketone-like" are replaced by "of the aldehyde type" and "of the ketone type" which may be more acceptable to the Examiner, and are a more accurate translation of the terms "aldehydartig" and "ketonartig" which have been used in the German language priority application.

Rejection under 35 U. S. C. § 102 (b)

Claims 1 to 4 and 6 to 19 stand rejected under 35 U.S.C. § 102 (b) as anticipated by the Kokel reference, CA 2,219,835.

The Kokel reference is limited to such polyurethanes which comprise structural units of



There is no way that the carbonyl group can be bond to the polymer chain of the polyurethane by means of a divalent group -X- which is selected from the group consisting of linear, branched and cyclic alkylene and aralkylene groups having at least three carbon atoms. If one of R⁵ and R⁶ is hydrogen, the carbonyl group would be bound by a direct link (right carbonyl group in the formula), or by two successive carbon atoms (left carbonyl group in the formula) and does therefore not fall under the definition of -X- in amended claim 1. If R⁵ or R⁶ stand for hydroxy-terminated poly-C₂ to C₄-alkylene oxide (variant c) of the Kokel reference) or carry one hydroxyl group (see page 2, first paragraph of the Kokel reference), the linking group comprises a nitrogen atom and does not fall under the definition of -X- in amended claim 1.

The component F as defined in amended claim 1 is therefore not anticipated by the Kokel reference. As this component F is mandatory for all claims, applicants deem that the rejection under 35 U.S.C. § 102 (b) has been rendered moot, and withdrawal of this reason of rejection is respectfully requested.

Rejection under 35 U. S. C. 103 (a)

Claims 1 to 10 stand rejected under 35 U.S.C. 103 (a) as rendered obvious by the Kokel reference cited supra.

As detailed above, this reference does not disclose a compound F as particularly pointed out and distinctly claimed in amended claim 1. There is also no teaching in Kokel of using such compounds F where the carbonyl group is bound by a divalent group -X- to the atom that becomes part of the polymer chain of the polyurethane.

Reference is made to the comparison examples of the Kokel reference where at page 28, comparison dispersions 1 and 1a are made using diacetone alcohol as

carbonyl compound, and at page 29, comparison dispersion 2 is made using 4-hydroxy-2-butanone as carbonyl compound. Comparison dispersion 1 had not reacted, comparison dispersion 1a with the same ingredients, but a variation of the process had separated into solid material and serum after one week's storage. Comparison dispersion 2 had turned into an intense brown to black solution. In both cases, the linking groups between the atom that becomes part of the polyurethane polymer chain and the carbonyl group are purely carbon atoms, and their number is two.

A person skilled in the art would therefore not have been motivated to depart from the teaching of the Kokel reference, and use other chemical compounds which do not comprise the carbonamide structure of the Kokel reference, especially not such compounds where the isocyanate reactive hydroxyl group and the ketone type carbonyl group are linked by only carbon atoms as both comparison examples were of this type.

It is correct that in the Kokel reference, when discussing prior art, mention is made of monoalcohols containing carbonyl groups, such as hydroxyacetone, hydroxy benzaldehyde, acetoin, benzoin, and adducts of diepoxides with ketocarboxylic acids. While the latter have ester groups in the linking group between the hydroxy group and the carbonyl group, and therefore do not fall under the definition of compound F per claim 1 of the instant application, hydroxyacetone and acetoin and benzoin have only one carbon atom between the atom that becomes part of the polyurethane polymer chain, and the carbonyl group, and hydroxy benzaldehyde has two carbon atoms between these groups that are also aromatic, and therefore neither of these fall under the definition of compound F in claim 1 which calls for at least three carbon atoms, and they may not be aromatic.

In summary, there is no teaching, suggestion or motivation provided by the Kokel reference of using the compounds F of the present application to modify the polyurethanes, and there is even teaching away from using purely carbon linking groups as the comparative dispersions made with such purely carbon linking groups (outside of the range of what is claimed in claim 1 of the present application) have led to unsatisfactory results.

For this reason, it is deemed that the subject matter of what is claimed in the present application is also not made obvious by the Kokel reference, and favorable reconsideration is therefore respectfully requested.

Respectfully submitted,

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